

National Institute of Technology, Tiruchirappalli:  
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Curriculum Vitae



Brief Profile:

**Dr.T.Sivasankar** is working as Assistant Professor in the Department of Chemical Engineering at National Institute of Technology Tiruchirappalli. He obtained his Ph.D. from Department of Chemical Engineering, Indian Institute of Technology Guwahati. His research areas are Sonochemical wastewater treatment, Nanoparticle synthesis and Biodiesel synthesis processes. He had published several international journals, international conference presentations and 2 book chapters. He has been awarded with a project from Department of Science and Technology under DST-SERC Fast Track Project for Young Scientist during the year 2009. Also, he is having an ongoing Ministry of Environment & Forest sponsored project. He is a constant reviewer for several international journals. He has been awarded “IEI Young Engineers Award 2013-2014 under Chemical Engineering Division” by The Institution of Engineers (India).

1. Name: **Dr.T.Sivasankar**
2. Designation: **Assistant Professor**
3. Office Address: **Department of Chemical Engineering, NIT Tiruchirappalli – 620015**
4. Telephone (Direct) (Optional):  
Telephone : 04312503131      Extn (Optional):  
Mobile (Optional):
5. Email (Primary): ssankar@nitt.edu      Email (Secondary):  
sivasankar\_us2004@yahoo.com
6. Field(s) of Specialization:  
Sonochemical processes.  
Advanced oxidation technologies.  
Environmental pollution control  
Nanoparticle synthesis.  
Biofuel synthesis.

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### 7. Employment Profile

Job Title	Employer	From	To
Assistant Professor	National Institute of Technology Tiruchirappalli, Tiruchirappalli	November 2008	Till date
Junior Research Fellow	CES, Anna University, Chennai	January 2004	June 2004

### 8. Academic Qualifications (From Highest Degree to High School):

Examination	Board / University	Year	Division/ Grade	Subjects
Ph.D.	Indian Institute of Technology Guwahati	2008	--	Chemical Engineering
M.Tech.	Vellore Institute of Technology (now Vellore University)	2003	8.38 (First Class)	Environmental Engineering
B.Tech.	University of Madras	2001	75% (First Class with Distinction)	Chemical Engineering

### 9. Academic/Administrative Responsibilities within the University

Position	Faculty/Department/Centre/Institution	From	To
Member, PG admission committee of NITT	Institution	2013	Till date
Faculty Advisor, Chemical Engineering Association	Department	2016	2017
Member for Metals committee for the Convocation, August 2015	Institution		
Member for Metals committee for the Institute Day, April 2015	Institution		
Faculty Advisor for PRAGYAN 2015	Institution		
Member for Metals committee for the Institute Day, April 2014	Institution		
Faculty Advisor for PRAGYAN 2014	Institution		
Staff Advisor for 4 <sup>th</sup> yr B.Tech. (Chemical Engineering) for the academic year 2013 - 2014 & 2014 - 2015, NITT	Department		
Member for Printing Committee for the Convocation 2013	Institution		
Member for Metals committee for the Institute Day, April 2013	Institution		

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Ph.D. and M.S. scrutinizing committee member for the June session of the year 2013-2014	Department		
PhD Exam Co-ordinator	Department	2009	2013
Member in Certificate committee for Convocation 2012	Institution		
Staff Advisor for 1 <sup>st</sup> yr M.Tech. (Chemical Engineering) for the academic year 2012 – 2013, NITT	Department		
Subject Co-ordinator for 1 <sup>st</sup> yr B.Tech. for the subject "Energy and Environmental Engineering"	Institution	2010	2012
PAC chairman for II yr B.Tech. (Chemical Engineering) students for the academic year 2011 – 2012	Department		

### 10. Academic/Administrative Responsibilities outside the University

Position	Institution	From	To

### 11. Awards, Associateships etc.

Year of Award	Name of the Award	Awarding Organization
2009	Young Scientist Award	Department of Science & Technology (INDIA) under DST-SERC Fast Track scheme, (Rs 12 Lakhs Project).
2014	IEI Young Engineers Award 2013-2014 under Chemical Engineering Division	Institution of Engineers (India)

### 12. Fellowships

Year of Award	Name of the Fellowship	Awarding Organization	From (Month/Year)	To (Month/Year)

### 13. Details of Academic Work

(i) Curriculum Development

(ii) Courses taught at Postgraduate and Undergraduate levels

Mass Transfer (UG), Process Engineering Economics (UG), Energy and Environmental Engineering (UG), Heat Transfer (UG), Fluid Machinery Laboratory (UG), Thermodynamics and Fluid Mechanics Laboratory (UG)

Air Quality Management (PG) and Environmental Engineering & Pollution Control (PG), Environmental Engineering Laboratory (PG)

(iii) Projects guided at Postgraduate level

No. of projects guided: 16

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(iv) Other contribution(s)

### 14. Details of Major R&D Projects

Title of Project	Funding Agency	Duration		Status
		From	To	Ongoing/ Completed
Investigations in Mechanistic (or Physical) Features of the Sonochemical Remediation of Dyes in Textile Effluent	Department of Science and Technology Under DST-SERC Fast Track Project for Young Scientist, Govt. of India	2009	2012	Completed
Synthesis of Novel Nanosized Semiconductor Photocatalyst for Sonophotocatalytic Degradation of Organic Pollutants from industrial wastewater	Ministry of Environment and Forests, Govt. of India	2012	2014	Completed
Experimental and Theoretical Aspects of Ultrasound in Food Emulsion	Indo-Russia joint project under DST-RFBR scheme, Govt. of India	2015	2017	Ongoing

### 15. Number of PhDs guided: 1

Name of the PhD Scholar	Title of PhD Thesis	Role(Supervisor/ Co-Supervisor)	Year of Award
S Saravanan	Sonochemical treatment of synthetic and real textile wastewater in assistance with Fenton, Fenton-like reagent and CuO nanoparticles	Supervisor	2016

### 16. Participation in Workshops/ Symposia/ Conferences/ Colloquia /Seminars/ Schools etc. (mentioning the role)

Date (s)	Title of Activity	Level of Event (International/ National/ Local)	Role (Participant/ Speaker/ Chairperson, Paper presenter, Any other)	Event Organized by	Venue

### 17. Workshops/ Symposia/ Conferences/ Colloquia/Seminars Organized (as Chairman/ Organizing Secretary/ Convenor / Co-Convenor)

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Title of Activity	Level of Event (International/ National/ Local)	Date (s)	Role	Venue
Self-sponsored Workshop on "Ultrasound and Its Applications"	National	2 days March 2013	Co-Ordinator	Conference Hall, CEESAT, NIT Tiruchirappalli
TEQIP-I sponsored workshop on "Integrating Energy and Environmental issues towards Cleaner Environment"	National	2 days December 2013	Co-Ordinator	Conference Hall, CEESAT, NIT Tiruchirappalli
TEQIP-II sponsored workshop on "Recent Initiatives on Energy and Environmental Research"	National	1 day February 2016	Co-Ordinator	Conference Hall, CEESAT, NIT Tiruchirappalli

18. Invited Talks delivered

Topic	Date	Inviting Organization
Physical Features of the Sonochemical Degradation of Nitroaromatics	December 16 2009	Department of Chemical Engineering, University Institute of Chemical Technology, Matunga, Mumbai and India-Australia Strategic Research Fund, at KV auditorium, Institute of Chemical Technology, Matunga, Mumbai
Physical insights into the sonochemical degradation of recalcitrant organic pollutants	December 15 2010	Indo-US Science and Technology Forum (IUSSTF), DST and IIT Delhi Golden Jubilee Celebrations, at The Claridges, Surajkund, New Delhi
Sonochemical Techniques for effluent Treatment	January 11 2011	The Institution of Engineers (India) in association with Indian Institution of Industrial Engineering, Tiruchirappalli Chapter, at the Institution Building (Opposite to Bldg.79), BHEL, Tiruchirappalli
Mechanistic Model Approach to Process Intensification of Sonochemical Degradation of Phenol	June 16 2011	Department of Chemical Engineering, National Institute of Technology Calicut, Kerala
Intensification of Sonochemical Processes: Challenges and Opportunities	August 20 2011	Department of Chemical Engineering, Vel Tech High Tech Dr.Rangarajan Dr.Sakunthala Engineering College, Avadi, Chennai, Tamilnadu

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Sonochemical Engineering and its applications on Environmental pollution control	Sep 1 2012	Department of Chemical Engineering, NIT Tiruchirappalli
Sonochemistry: From science to Engineering and Now an Emerging Greener Method for Wastewater Treatment	Dec 1 2012	Department of Chemical Engineering, NIT Tiruchirappalli
Ultrasound: Understanding the Mechanisms	Mar 22 2013	Department of Chemical Engineering, NIT Tiruchirappalli
Sonochemical Wastewater Treatment: Solution for Greener Technology	Nov 13 2013	Department of Civil Engineering, NIT Tiruchirappalli
Sonochemical Engineering: Green Technology for Better Environment	12 <sup>th</sup> February 2014	Department of Food Technology, School of Chemical & Food Sciences, Kongu Engineering College, Perundurai, Erode, Tamilnadu
Biomass pretreatment by ultrasonic processing	20 <sup>th</sup> August 2014	Department of Agircultural Microbiology, Tamilnadu Agricultural University, Coimbatore, Tamilnadu
Application of ultrasound for nanomaterial synthesis	25 <sup>th</sup> November 2014	Department of Chemical Engineering, Coimbatore Institute of Technology, Coimbatore, Tamilnadu
Application of ultrasound for bio-nanomaterial synthesis	21 <sup>st</sup> July 2015	Department of Chemical Engineering, Coimbatore Institute of Technology, Coimbatore, Tamilnadu
Sonochemical Process for Wastewater Treatment	7 <sup>th</sup> May 2016	Department of Chemical Engineering, NIT Tiruchirappalli

19. Membership of Learned Societies

Type of Membership (Ordinary Member/ Honorary Member / Life Member )	Organization	Membership No. with date
Life Associate Member	Indian Institute of Chemical Engineers	LAM-36769
Life Member	Indian Institute of Public Administration	L-11688
Life Member	The Institution of Engineers (India)	M-151406-1

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20. Academic Foreign Visits

Country	Duration of Visit	Programme
Malaysia	February 19-21, 2012	International Conference on Environmental, Biological and Ecological Sciences, and Engineering (ICEBESE 2012)
Malaysia	July 25-28, 2015	2 <sup>nd</sup> Asia-Oceania Sonochemical Society Conference (AOSS-2)
Russia	22 <sup>nd</sup> to 24 <sup>th</sup> November 2016	Indo-Russia joint project under DST-RFBR scheme, Govt. of India

21. Publications

(A) Refereed Research Journals:

Author(s)	Title of Paper	Journal	Volume (No.)	Page numbers	Year	Impact Factor of the Journal (Optional)
Sivasankar, T., Paunikar, A.W., Moholkar, V.S.	Mechanistic Approach to Enhancement of the yield of a Sonochemical Reaction	American Institute of Chemical Engineers Journal	53 (5)	1132-1143	2007	<b>2.581</b>
Sivasankar, T., Moholkar, V.S.	Mechanistic Features of the Sonochemical Degradation of Organic Pollutants	American Institute of Chemical Engineers Journal	54 (8)	2206-2219	2008	<b>2.581</b>
Sivasankar, T., Moholkar, V.S.	Physical Features of the Sonochemical Degradation of Nitroaromatic Pollutants	Chemosphere	72	1795-1806	2008	<b>3.499</b>
Sivasankar, T., Moholkar, V.S.	Mechanistic Approach to Intensification of Sonochemical Degradation of Phenol	Chemical Engineering Journal	149 (1-2)	57-69	2009	<b>4.058</b>

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Kalva, A., Sivasankar, T., Moholkar, V.S.	The Mechanism of Ultrasound Enhanced Transesterification of Vegetable Oil	Industrial and Engineering Chemistry Research	48 (1)	534-544	2009	<b>2.235</b>
Sivasankar, T., Moholkar, V.S.	Physical Insights into the Sonochemical Degradation of 2, 4 Dichlorophenol	Environmental Technology	31 (14)	1483-1494	2010	<b>1.197</b>
Sivasankar, T., Moholkar, V.S.	Physical Insights into the Sonochemical Degradation of Recalcitrant Organic Pollutants with Cavitation Bubble Dynamics	Ultrasonics Sonochemistry	16 (6)	769-781	2009	<b>3.816</b>
Reddy, B.R., Sivasankar, T., Sivakumar, M., Moholkar, V.S.	Physical Facets of Ultrasonic Cavitation Synthesis of Zinc Ferrite Particles	Ultrasonics Sonochemistry	17 (2)	416-426	2010	<b>3.816</b>
Anandan, S., Sivasankar, T., Teresa Lana- Villarreal	Synthesis of TiO <sub>2</sub> /WO <sub>3</sub> nanoparticles via sonochemical approach for the Photocatalytic Degradation of Methylene Blue under Visible Light Illumination	Ultrasonics Sonochemistry	21	1964-1968	2014	<b>3.816</b>
Laiju, A.R., Sivasankar, T., Nidheesh, P.V.	Iron loaded Mangosteen as a Heterogeneous Fenton catalyst for the Treatment of Landfill Leachate	Environmental Science and Pollution Research	21	10900– 10907	2014	<b>2.828</b>
Saravanan, S., Sivasankar, T.	Ultrasound Assisted Fenton's treatment of Reactive Black 5 dye: Effect of system parameters, kinetics and mechanism	Desalination and Water Treatment	56,	492-501	2015	<b>0.988</b>



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Kurukutla, A.B., Satishkumar, P., Anandan, S., Sivasankar, T.	Intensification of Sonochemical Degradation of Rhodamine B using Oxidants, hydrogen peroxide/peroxydisulphate/peroxymonosulphate with Fe <sup>2+</sup> ion: Proposed Pathways and Kinetics	Environmental Engineering Science	32(2)	129-140	2015	<b>0.933</b>
Hemapriyamvadha, R., Sivasankar, T.	Sonophotocatalytic treatment of Methyl Orange Dye and Real Textile Effluent using synthesized nano-Zinc Oxide	Coloration Technology	131	110-119	2015	<b>1.173</b>
Dinesh, G.K., Anandan, S., Sivasankar, T.	Sonophotocatalytic treatment of Bismarck Brown G dye and real textile effluent using synthesized novel Fe(0) doped TiO <sub>2</sub> catalyst	RSC Advances	5	10440-10451	2015	<b>3.708</b>
Geddam, S., Dinesh, G.K., Sivasankar, T.	Determination of Thermal Performance of a Box Type Solar Cooker	Solar Energy	113	324-331	2015	<b>3.541</b>
Saravanan, S., Sivasankar, T.	Sono-Fenton degradation of Basic Blue 3 dye: Understanding the mechanism, parametric effect and kinetic studies	Materials Focus	4	313-320	2015	
Saravanan, S., Sivasankar, T.	Synthesis of Copper Oxide Nanoparticles using Ultrasound for the Treatment of Textile Organic Dyes (Reactive Black 5 and Basic Blue 3)	Journal of Catalyst & Catalysis	2	16-22	2015	

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Saravanan, S., Sivasankar, T.	Effect of ultrasound power and calcination temperature on the sonochemical synthesis of Copper Oxide nanoparticles for textile dyes treatment	Environmental Progress & Sustainable Energy	35	669-679	2016	<b>1.403</b>
Reddy, D.R., Dinesh, G.K., Anandan, S., Sivasankar, T.	Sonophotocatalytic Treatment of Naphthol Blue Black dye and Real Textile Wastewater using Synthesized Fe doped TiO <sub>2</sub>	Chemical Engineering and Processing: Process Intensification	99	10-18	2016	<b>2.071</b>
Kaviyarasan, K., Anandan, S., Mangalaraja, R.V., Sivasankar, T., Ashokkumar, M.	Sonochemical synthesis of Cu <sub>2</sub> O nanocubes for enhanced chemiluminescence applications	Ultrasonics Sonochemistry	29	388-393	2016	<b>3.816</b>
Dinesh, G.K., Anandan, S., Sivasankar, T.	Synthesis of Fe doped Bi <sub>2</sub> O <sub>3</sub> Nanocatalyst and its Sonophotocatalytic Activity on Synthetic Dye and Real Textile Wastewater	Environmental Science and Pollution Research	23	20100–20110	2016	<b>2.828</b>
Dinesh, G.K., Anandan, S., Sivasankar, T.	Synthesis of Fe/ZnO composite nanocatalyst and its sonophotocatalytic activity on Acid yellow 23 dye and real textile effluent	Clean Technologies and Environmental Policy	18	1889–1903	2016	<b>1.934</b>
Dinesh, G.K., Anandan, S., Sivasankar, T.	Sonophotocatalytic Degradation of Scarlet Red dye using Fe-Bi <sub>2</sub> O <sub>3</sub> Catalyst and its Process Optimization by Response Surface Methodology	Journal of Catalyst & Catalysis	3	14-32	2016	

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Pugazhenthiran, N., Kaviyarasan, K., Sivasankar, T., Emeline, A., Bahnemann, D., Mangalaraja, R.V., Anandan, S.	Sonochemical Synthesis of Porous NiTiO <sub>3</sub> Nanorods for Photocatalytic Degradation of Ceftiofur Sodium	Ultrasonics Sonochemistry	In press	In press	2016	<b>3.816</b>
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(B) Conferences/Workshops/Symposia Proceedings

Author(s)	Title of Abstract/ Paper	Title of the Proceedings	Page number s	Confe rence Them e	Venue	Year
<b>Sivasankar, T.,</b> Moholkar V.S.	A Mechanistic Approach to Enhancement of Phenol degradation with ultrasound	ICCTEM- 2007			Pondicher ry, (India)	January 2007
Abhijit Majhi, Abhigyan Gupta, P. Monash, <b>T.</b> <b>Sivasankar, G.</b> Pugazhenth i	Preparation and Characterization of Nano-sized Alumina Powders by Ultrasound Stimulation,	CHEMCON- 2007			Kolkata, (India)	December 2007
<b>Sivasankar, T.,</b> Moholkar V.S.	Enhancement of Sonochemical Degradation of Hydrophillic and Hydrophobic organics pollutants	8 <sup>th</sup> IWA specialized conference on Small Water and Wastewater systems and 2 <sup>nd</sup> specialized conference on Decentralized Water and Wastewater International network			Coimbatore, Tamilnad u, (India)	February 2008
<b>Sivasankar, T.,</b> Moholkar V.S.	Physical Features of Sonochemical Degradation of Recalcitrant Organic Pollutants	CHEMCON- 2008,			Chandigar h, (India)	December 2008

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Kurukutla, A.B., Satishkumar, P., Anandan, S., <b>Sivasankar, T.</b>	Color Removal Efficiency Study of Recalcitrant Rhodamine B Dye in Aqueous Solution Using Probe and Bath Type Ultrasound Sources	CHEMCON-2010			Annamalai University, Chidambaram, (India)	December 2010
Saravanan, S., <b>Sivasankar, T.</b>	Study on the decolourization of aqueous solution of Reactive Black 5 dye using Ultrasound	ICER-2011			SVNIT, Surat, (India)	December 2011
Kurukutla, A.B., Satishkumar, P., Anandan, S., <b>Sivasankar, T.</b>	Ultrasonic Degradation of Rhodamine B dye using Fenton's type Reagents	International Conference on Environmental, Biological and Ecological Sciences, and Engineering (ICEBESE 2012)			Kuala Lumpur, Malaysia	February 19-21, 2012
Saravanan, S., Sivasankar, T.	Colour Removal of an Azo Dye (Reactive Black 5) from Textile Wastewater using Ultrasound	Second International Conference on Advanced Oxidation Processes, AOP 2012			Mahatma Gandhi University, Kottayam, Kerala, (India)	October 5-8, 2012
Singh, R., <b>Sivasankar, T.</b>	Ultrasound assisted Adsorptive removal of Reactive Black 5 dye using Activated Carbon prepared from Mangosteen Fruit Peel	Bright International Conference and Events (BIOFEST 2012)			Hyderabad, (India)	December 12-13, 2012
Hemapriyamvadha, R., <b>Sivasankar, T.</b>	Degradation of Methyl Orange using Sonochemical Techniques and "Green" Nano Iron – A Synergistic Approach	International Conference on Advances in Chemical Engineering (ICACE-13)			NIT Raipur, (India)	April 5-6, 2013
Saravanan, S., <b>Sivasankar, T.</b>	Synthesis of Copper Oxide nanoparticles by Sonochemical method	International Conference on Recent Advancements in Chemical, Environmental and Energy Engineering			SSN College of Engineering, Chennai, (India)	February 27-28, 2014

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Saravanan, S., Randeep Singh, <b>Sivasankar, T.</b>	Degradation Of Basic Blue 3 Dye by using novel Fenton's reagent in assistance with Ultrasound	International Conference on Recent Advancement s in Chemical, Environment al and Energy Engineering (RACEEE-14)			SSN College of Engineeri ng, Chennai, (India)	February 27- 28, 2014
Trivendra Singh Gangwar, Dinesh, G.K., <b>Sivasankar, T.</b>	Synthesis of nano- Bismuth Oxide ( $n\text{Bi}_2\text{O}_3$ ) and Zero Valent Iron Doped nano-Bismuth Oxide ( $n\text{Bi}_2\text{O}_3$ - Fe(0)) for Sonophotocatalytic degradation of Textile Dyes	International Conference on Recent Advancement s in Chemical, Environment al and Energy Engineering (RACEEE-14)			SSN College of Engineeri ng, Chennai, (India)	February 27- 28, 2014
Anjaneyulu, J.V.V.N., Dinesh, G.K., <b>Sivasankar, T.</b>	Sonophotocatalytic Treatment of Acid Yellow 23 using Novel nano-Zinc Oxide Doped Iron ( $n\text{ZnO-Fe}(0)$ )	International Conference on Recent Advancement s in Chemical, Environment al and Energy Engineering (RACEEE-14)			SSN College of Engineeri ng, Chennai, (India)	February 27- 28, 2014
Dinesh, G.K., <b>Sivasankar, T.</b>	Synthesis and Sonophotocatalytic Activity of Fe(0) Doped $\text{TiO}_2$ Nanocatalyst on BB1 Dye Degradation	International Conference on New Frontiers in Chemical, Energy and Environment al Engineering (INCEEE- 2015),			Departme nt of Chemical Engineeri ng, National Institute of Technolog y Warangal, (India)	March 20-21, 2015
Gazliya Nazimudheen, <b>Sivasankar, T.</b>	Ultrasound Pretreatment For Biomethanogenesis of Landfill Leachate	International Conference on New Frontiers in Chemical, Energy and Environment al Engineering (INCEEE- 2015),			Departme nt of Chemical Engineeri ng, National Institute of Technolog y Warangal, (India)	March 20-21, 2015

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(C) Books & Monographs

Author(s)	Title of Book/Monograph	Name of Publishers	Year of Publication	ISSN/ISBN Number
Moholkar V.S., Sivasankar, T., Nalajala, V.S.	Mechanistic Aspects of Ultrasound Enhanced Physical and Chemical Processes”, Handbook on Applications of Ultrasound: Sonochemistry for Sustainability	CRC press	2012	978-1- 4398-4206- 5
Dinesh, G.K., Sivasankar, T., Anandan, S.	Metals Oxides and Doped Metal Oxides for Ultrasound and Ultrasound Assisted Advanced Oxidation Processes for the Degradation of Textile Organic Pollutants	Springer	2016	978-981- 287-277-7